

**HDVS**

**High Definition Video System**

**SONY®**



# Sony's HDVS\*—A Total System

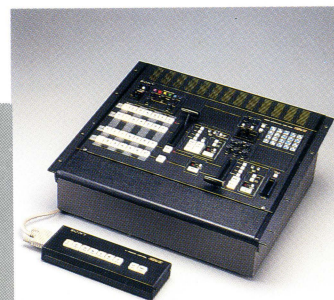
*Simply stated—Sony's High Definition Video System (HDVS) dramatically improves video picture quality.*

*Complete program production with a picture matching or even surpassing that of 35mm cinema film is now possible on video tape because this system provides five times as much information as any of the present television standards.*

*The video tape recorders, cameras, image display systems, and special effects generators are just the beginnings of this system which will soon include such products as electron beam recorders and telecine equipment.*

*Sony's HDVS is sure to change the way people view video.*

\*HDVS is a trademark of Sony Corporation.





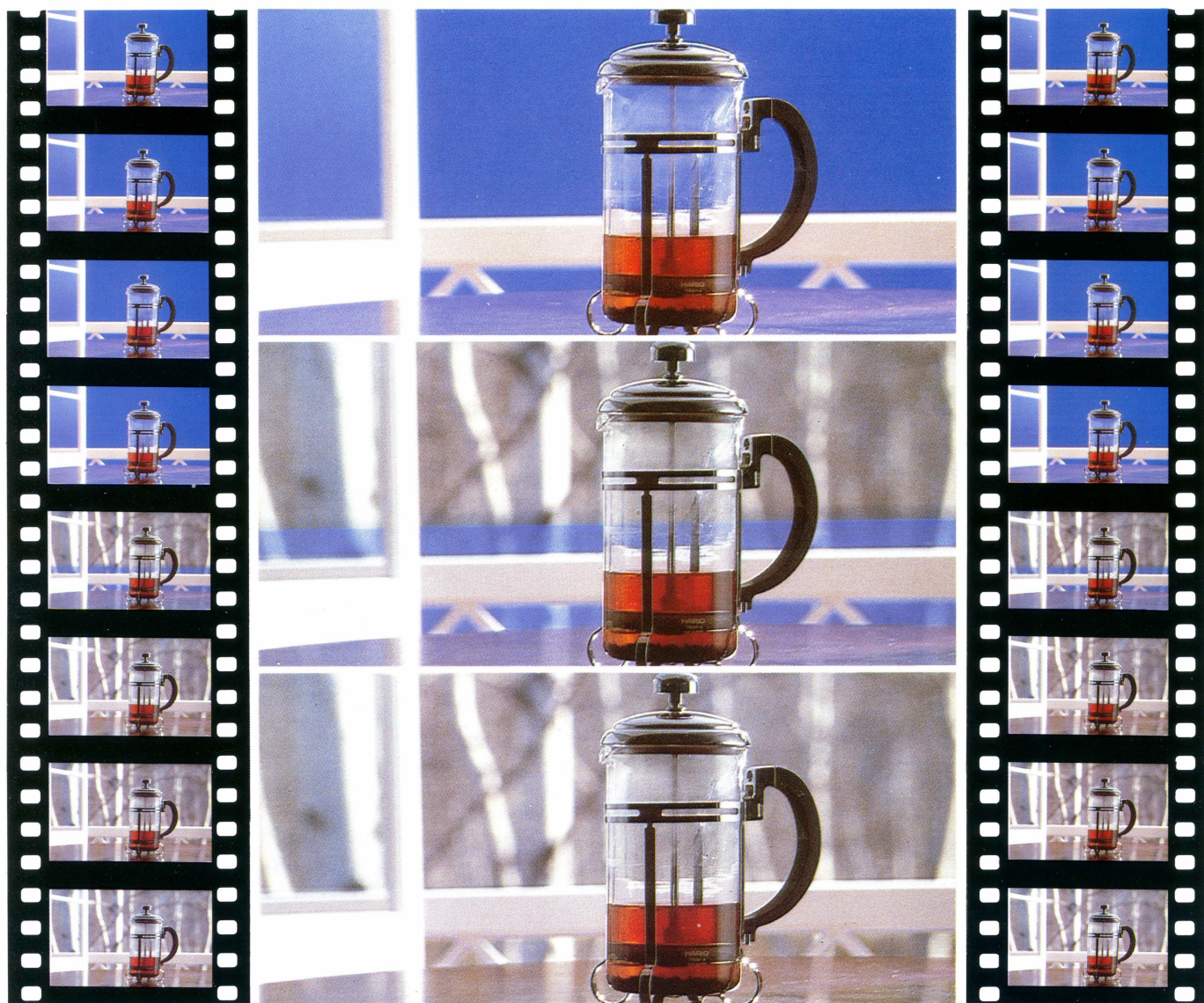
# HDVS Applications

*Although HDVS is envisioned as the broadcast television standard of the near future, its high quality has made other applications become apparent. In fact, many of these applications will come into use before HDVS becomes a television broadcasting reality.*

## Motion Picture Production

The production of films is an especially exciting application of this system. Producing theatrical release motion pictures with video is easier and

more convenient than working with film and in some ways video even surpasses film as an artistic medium.



*\*Video chromakeying example taken directly from 35mm negative movie film.*

By exploiting the new video to film transfer technology, a film producer can take advantage of such video features as "on-the-spot" confidence playback, which virtually eliminates the need for daily rushes, electronic editing, which is more time efficient and smoother than film editing, and video

chromakeying, which is superior to film color matteing.

This new system can only enhance the art of film making, and will soon be considered Sony's major contribution to the film industry.



High Quality Video Image Displays

High quality large screen image displays are another exciting application of this unique system. The HD Display System has all of the quality of 35mm movie film with none of the disadvantages (eg. film scratching, dust accumulation, etc.).

This system is particularly suitable for video theaters, advertising, expositions, and anywhere else where high quality pictures with the convenience of a video projection system are required.

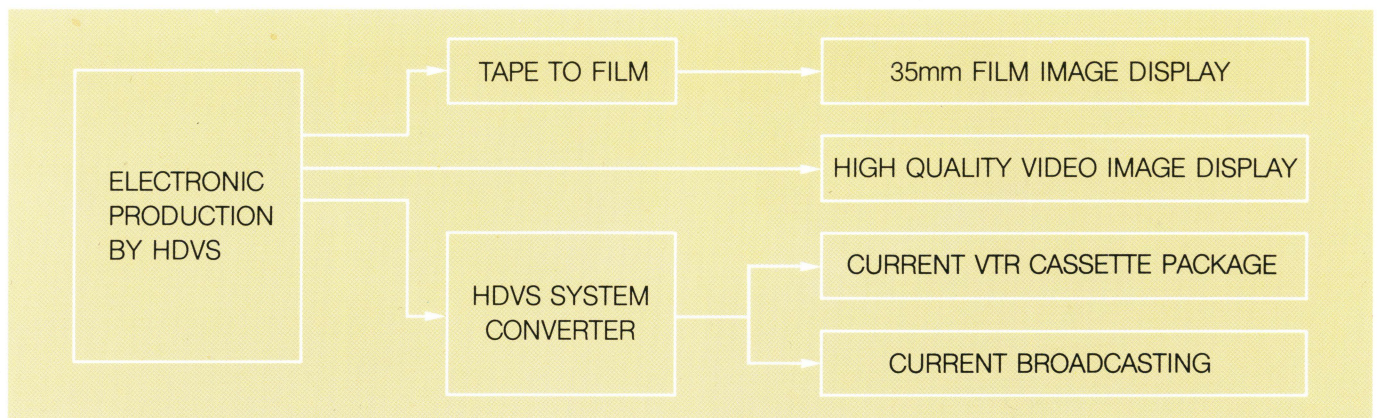
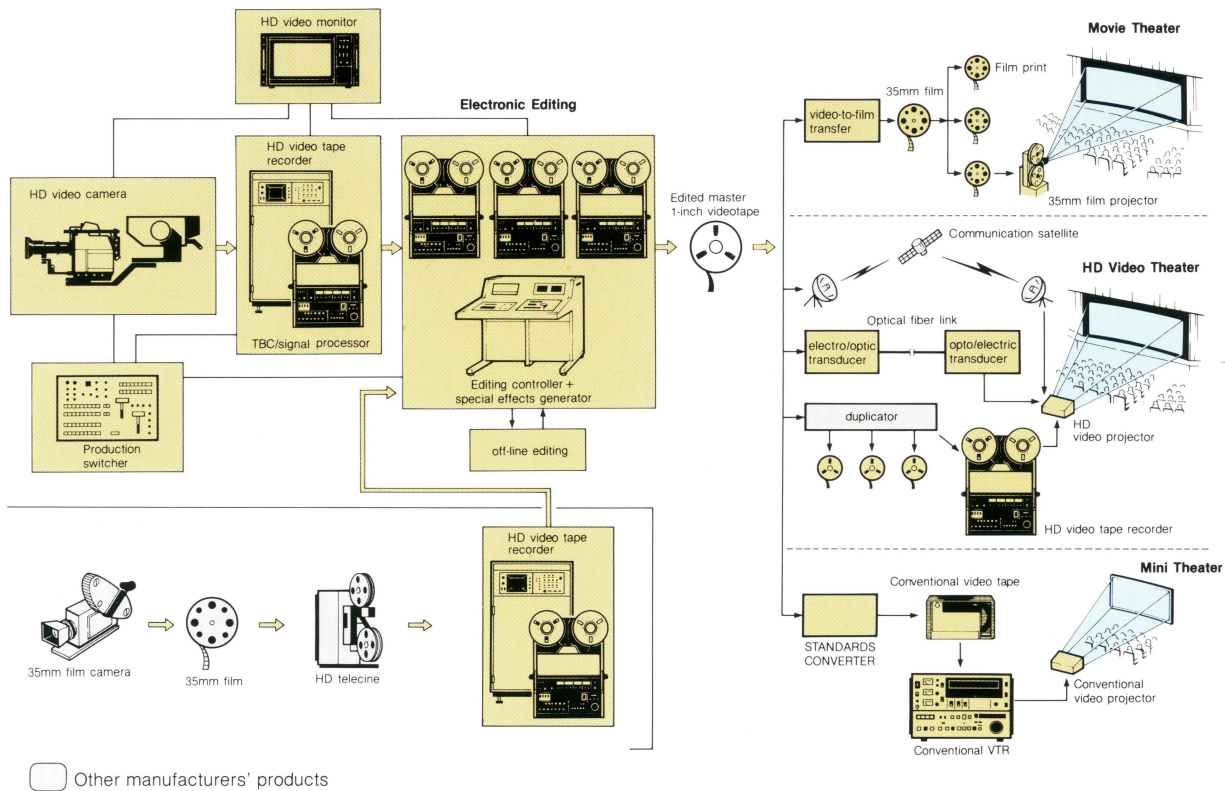


In addition to the video projection system, there are several ways to display HDVS signals. For instance, because of the part that HDVS will play in the future of broadcasting, Sony has continued to

develop its HDVS monitor lineup. The latest addition to this lineup is a 37" monitor that is suitable for any number of applications.



## Motion Picture Production Display Using HDVS



## Other Applications

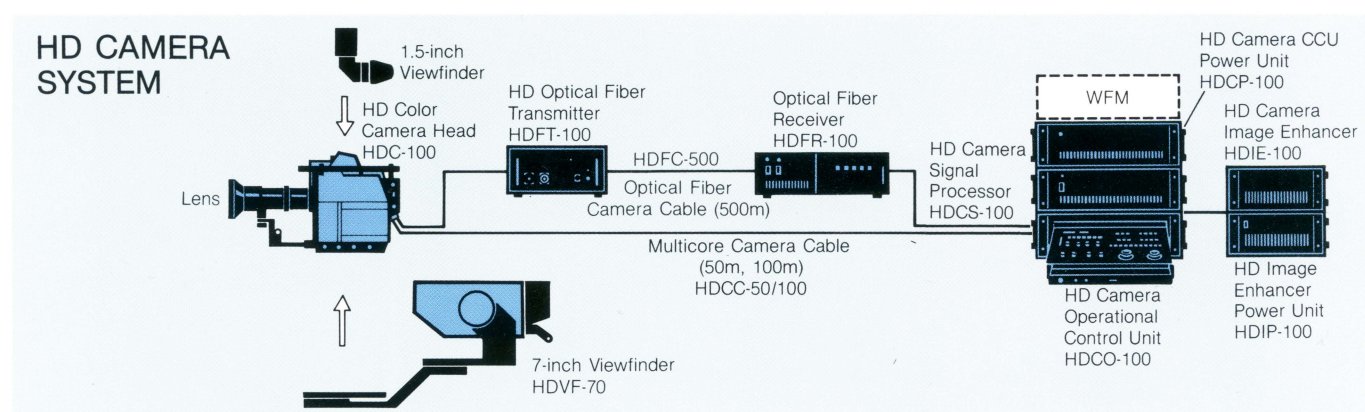
Because of its unique combination of video convenience and extremely high quality image reproduction, HDVS has many other applications as well. Among these applications are the following:

- Specialized closed circuit and industrial uses
- Graphic printing applications
- Visual data storage and document retrieval systems



# HD Camera System

HDVS naturally requires a camera capable of shooting high quality pictures. This camera does that, yet it is easy to operate and incredibly mobile—two important features of film cameras. In addition, the camera control unit (CCU), which provides complete automatic setup or manual control of the setup parameters, permits the fine adjustments necessary for excellent colorimetry and minimal registration errors. Also part of the camera system are the HD Switcher, the HD Telop Camera, the HD Camera Image Enhancer, a wide variety of lenses from which the lens that precisely suits the application can be selected, and an optical fiber connection which allows long distance transmitting.



## HD Color Camera

HDC-100



With 7-inch Viewfinder  
(The lens and the viewfinder are optional)

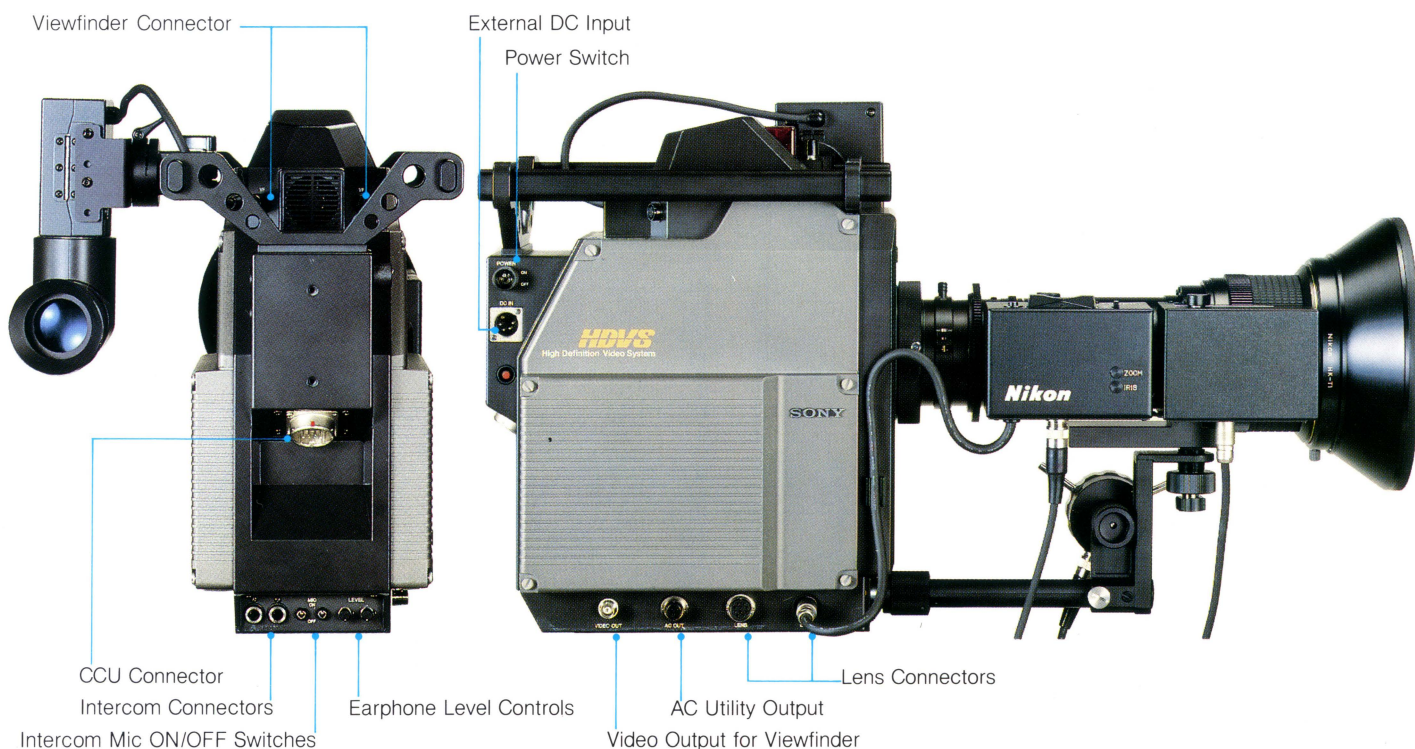


With 1.5-inch Viewfinder  
(The lens is optional)

### Features

- The new 1 inch electrostatic deflection tubes provide high resolution (1200 lines) and high picture quality.
- Registration error—0.025% at center.
- Adoption of double optical filter wheels provides facilities for both color temperature correction and neutral density or special effects filters.
- Optional 7 inch monochrome viewfinder for studio use.





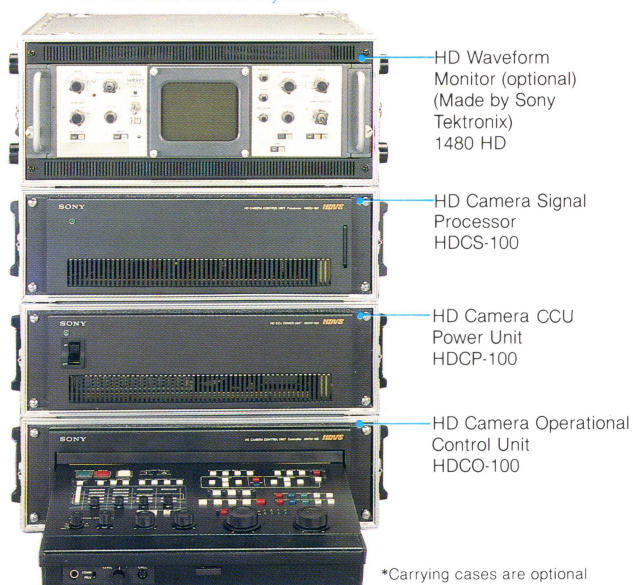
## HD Camera Control System

HDCO-100/HDCS-100/HDCP-100

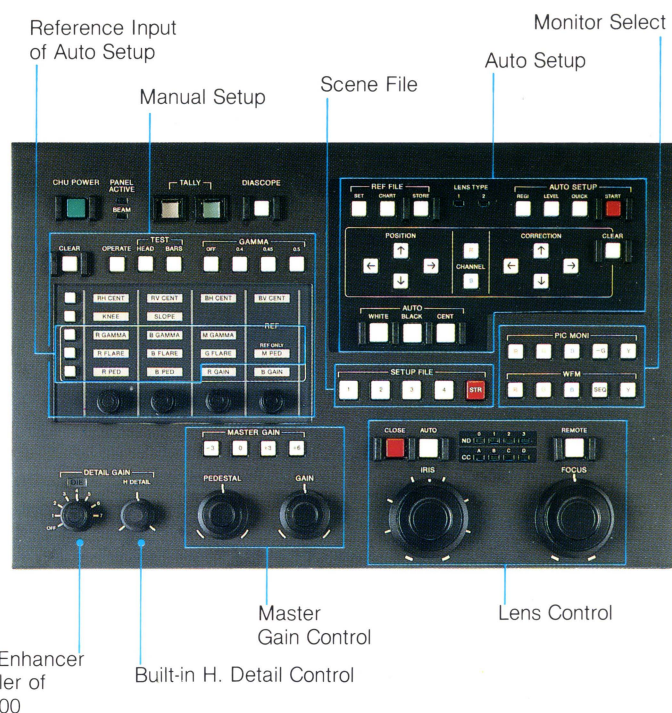
### Features

- Full auto setup function gives comprehensive fine adjustment.
- The distance between the camera and the CCU can be extended up to 200m with the multi-core cable and up to 1km with the optical fiber cable.

### HD Camera Control System



### Control Panel of HDCO-100





## HD Switcher

HDS-1000



**Features**

- Thirty-one standard/rotary wipes
- Effects (Wipe/Key Wipe/Mix/Key Mix)
- Variable soft and border wipes
- Chroma keyer
- Downstream keyer
- Serial and parallel interfaces
- Color bars generator
- Two title color generator
- Pattern modulator
- Positioner
- Take
- Auto Take (variable transition time)
- Genlock inputs
- 7 inputs, 4 outputs buses

## HD Telop Camera

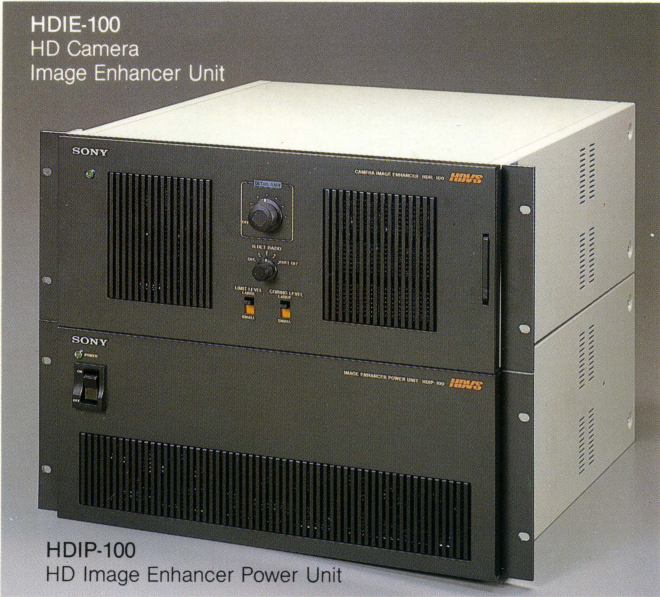
HDST-1000

**Features**

- High resolution
- Single 2/3-inch Saticon
- Auto beam optimizer
- Genlock
- Auto gain control
- Auto black level

## HD Camera Image Enhancer

HDIE-100/HDIP-100



- Provides clear, sharp, and natural pictures
- Aperture and detail compensation
- HDIP-100 is the power supply unit for HDIE-100

## HD Lenses

Lens mount: Special

Focal length (mm)	F. NO	M.O.D. (m)	Weight (kg)	Manufacturer
11.5	1.6	0.3	2.3	FUJINON
15	1.6	0.3	2.0	CANON
20	1.6	0.5	1.8	FUJINON
28	1.6	0.6	1.8	FUJINON
35	1.6	0.4	3.0	CANON
56	1.6	0.6	1.8	FUJINON

## Zoom Lenses

Focal length (mm)	Zoom ratio	F NO.	M.O.D. (m)	Weight (kg)	Manufacturer
12 - 84	× 7	1.8	0.7	5	NIKON HANDY
23.5 - 280	× 12	1.8	2.5	7	NIKON HANDY
15 - 180	× 12	1.8	1.2	5	FUJINON HANDY
12.5 - 175	× 14	1.6	0.75	21	FUJINON STUDIO
12.5 - 175	× 14	1.6	0.7	23	CANON STUDIO

## HD Multicore Camera Cable

HDCC-50/100 (50m, 100m)

## HD Optical Fiber Link

HDFT-100/HDFR-100/HDFC-500



# HD VTR System

The HD VTR is based upon the current 1-inch type-C format VTR, the BVH-2000 series, which has gained a considerable reputation for excellent performance and ease of operation.

Together with the HD TBC/Signal processor, the HD VTR provides a most sophisticated recording system which employs Sony's latest technology.

## HD Video Tape Recorder and HD TBC/Signal Processor

HDV-1000

HDT-1000

Waveform Monitor  
Sony Tektronix  
528A-HR1 (optional)

TBC/Signal Processor  
HDT-1000

TBC Control  
Waveform Select

Video Tape Recorder  
HDV-1000

### Features

#### HDV-1000 (1-inch VTR)

- Incorporates many of the features of the BVH-2000 including compact size, lightweight, ease of tape threading, computerized servo control, front panel operation, etc.
- With either wide band RGB or component signal inputs, high quality picture recording is assured.
- Wide band (20MHz) recording system.
- Front panel controls for basic simple editing.
- One hour recording time with 11.75-inch reels.
- Time code editing possible when interfaced with the BVE-800, BVE-3000A or BVE-5000 editing controllers.
- Built-in Time Code Generator/Reader.

#### HDT-100 (TBC/Signal Processor)

- 5Hp-p error correction window maintains stable luminance and chrominance signals.
- 8-bit digital processing system.
- The built-in Digital Drop Out Compensator replaces lost information by interpolating pre and post line signals.
- Built-in velocity compensation.



# HD Image Display System

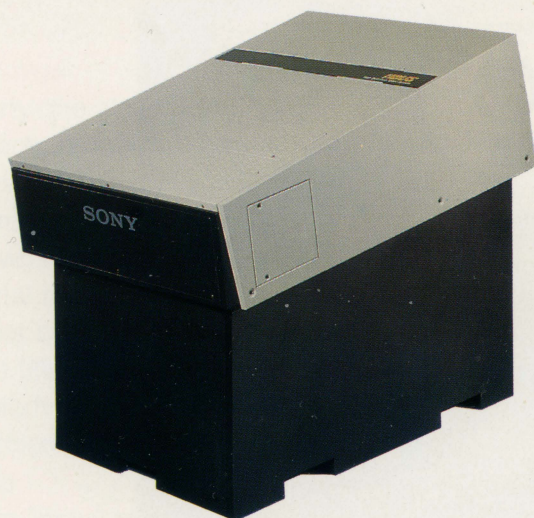
Both HDVS color monitors and two types of large screen projection systems (flat and concave screens) are available to suit almost any application. Through state-of-the-art technology, a high quality picture with excellent color fidelity is obtained.

## Concave Screen Type Projector System

HDI-120 (120")

### Features

- 5:3 aspect ratio.
- Large screen display (120-inch diagonal).
- Both ceiling and table top projectors available.
- Remote control.
- Digital registration and focus incorporated.



### Product Composition

The HDI-120 consists of the following four components

- HDIH-120 HD Projection Head (including remote control unit)
- HDIT-120 HD Projection Head Stand
- HDIS-120 Screen (5:3 aspect ratio)
- HDIB-120 Screen Stand

## Flat Screen Type Projection Head (60" - 240")

HDIH-200F/HDIH-120F/HDIH-70F

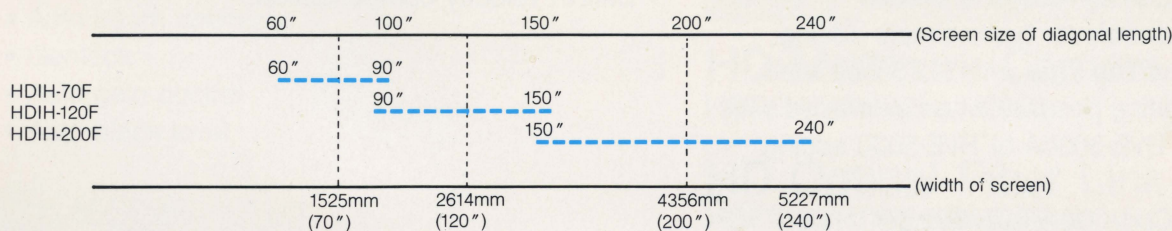
Flat screen from 60" to 240" can also be used for a larger scale image display system.

Three types of projection heads are available.

### Features

- 5:3 aspect ratio.
- Large screen display.
- Both ceiling and table top projectors available.
- Remote control.
- Digital registration and focus incorporated.

The following screen sizes can be chosen from:





## HD Color Monitors

HDM-1220/1220E (12")



HDM-1820/1820E (18")



### Features (HDM-1220/1220E/1820/1820E)

- Two RGB Inputs
- Monochrome mode available.
- H Delay, V Delay and underscan facilities provide monitoring and camera or VTR signal evaluations.
- Service controls located in a drawer enable easy access for adjustment.
- 5:3 aspect ratio.
- High black level and color temperature stability due to the beam detecting circuit system around the CRT, and the pulse adding system used for brightness and contrast control.
- The screen is divided for simple convergence adjustment into four sections with independent controls.

## HD Monochrome Monitor



HDM-2820/2820E (28")



HDM-3720/3720E (37")



### Features (HDM-2820/2820E/3720/3720E)

- 5:3 aspect ratio
- Flat, square CRT surface.
- High contrast ratio.
- Digital convergence adjustment.
- High black level and color temperature stability due to the beam detecting circuit system around the CRT and the pulse adding system used for brightness and contrast control.
- H delay, V delay and underscan facilities provide monitoring and camera or VTR signal evaluations. (HDM-2820/2820E only)

HDM-140 (14")

### Features

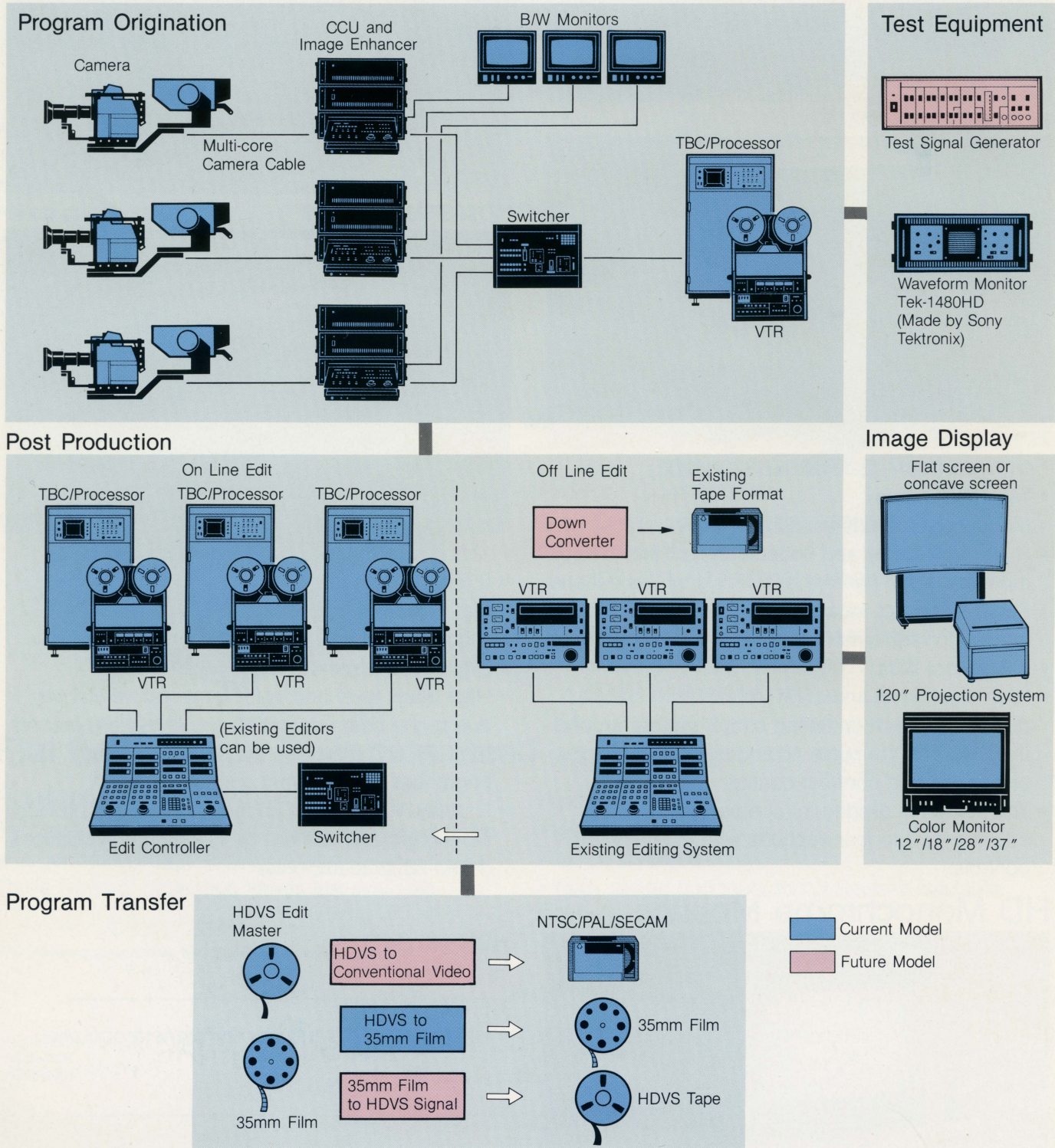
- 5:3 aspect ratio
- High quality B/W monitor for camera operation.



# Sony HDVS System Configurations

HDVS has been in hot debate since its inception but many manufacturers have started to produce various kinds of high definition equipment based on this system. However, only Sony has a complete system capable of everything from program origination to post production and from program transfer to image display. Sony is also preparing for the day when the world will embrace this high quality television system as its broadcast standard.

*\*Detailed product information will be made available upon request.*





# Specifications

## CAMERA SYSTEM

### COLOR CAMERA (HDC-100 with camera control unit)

Pick up tube	1 inch magnetic focus static deflection Saticon 3-tube system
Sensitivity	2000 lux at F3.0, 3200°K, reflectance 90%
Resolution	1200 lines at center
Registration error	Zone 1: 0.025% Zone 2: 0.05% Zone 3: 0.1%
Gain control	Selectable: -3dB, 0, +3dB, +6dB for each step, continuous $\pm 2$ dB control
Power requirements	AC 100/120/220/240V $\pm 10\%$ , 50/60 Hz
Operating temperature	0°C to 40°C (32°F to 95°F)
Dimensions	Camera head (HDC-100) Approx. 160(W) $\times$ 354(H) $\times$ 280(D)mm (6.3 $\times$ 13.9 $\times$ 11")  Camera control system (Controller/Processor) Approx. 582(W) $\times$ 133(H) $\times$ 400(D)mm (19 $\times$ 5.2 $\times$ 15.7")
Weight	Camera head (HDC-100) Approx. 9.9 kg (21.8 lb)  Camera control system HDCO-100 Approx. 15.7 kg (34.6 lb) HDGS-100 Approx. 12.1 kg (26.7 lb) HDCP-100 Approx. 15.5 kg (34.2 lb)

### IMAGE ENHANCER (HDIE-100/HDIP-100)

Signal processing	RGB 3 channel component signal
Quantization	8-bit
Frequency response	60Hz to 20MHz $\pm 0.5$ dB (RGB)
Dimensions	Approx. 482(W) $\times$ 177(H) $\times$ 450(D)mm
Weight	HDIE-100 Approx. 18 kg (39.7 lb) HDIP-100 Approx. 21 kg (46.3 lb)
Power consumption	650W
Operating temperature	0°C to 40°C (32°F to 104°F)
Sampling rate	69.1 MHz

### SWITCHER (HDS-1000)

Video input	VBS $\times$ 7, RGB component
Title input	VS $\times$ 2, B/W
Program output	VBS $\times$ 2, RGB component
Preview output	VBS $\times$ 1, RGB component
Return video output	VBS $\times$ 1, RGB component
Black burst output	Composite sync $\times$ 2, Burst 0.3Vp-p
Differential gain	Less than 2% at 50% APL
Frequency response	$\sim 20$ MHz $\pm 0.2$ dB, $\sim 30$ MHz $\pm 3.8$ dB
Cross talk	-40dB at 30MHz
Path length deviation	Less than $\pm 0.2$ dB
Power requirements	AC 100 to 120/220 to 240V, 120W
Dimensions	Approx. 450(W) $\times$ 150(H) $\times$ 420(D)mm (17.7 $\times$ 5.9 $\times$ 16.5")
Weight	Approx. 13 kg (28.7 lb)

### TELOP CAMERA (HDST-1000)

Resolution	1000 TV lines (H), 800 TV lines (V)
Pick up tube	Single $\frac{2}{3}$ " MF Saticon
Auto gain control	0dB/+6dB/AGC
Frequency response	30Hz to 25MHz $\pm 1$ dB
Lens mount	C mount

Design and specifications subject to change without notice.

## VTR SYSTEM

### 1-INCH VTR (HDV-1000)

GENERAL	
Power requirements	AC 100/120/220/240V $\pm 10\%$ , 50/60Hz
Power consumption	480W max
Operating temperature	+10°C to +35°C (50°F to 95°F)
Storage temperature	-20°C to +60°C (-4°F to 140°F)
Humidity	10% to 85% (non-condensing)
Weight	Approx. 73 kg (161.1 lb)
Dimensions	Approx. 570(W) $\times$ 680(H) $\times$ 588(D)mm (22.4 $\times$ 26.8 $\times$ 23.1")
Track	Video track: 4 Audio track: 3 CTL track: 1
Tape speed	48.31cm/sec
Writing speed (Relative speed)	25.9m/sec
Recording time	63min. with 11.75-inch reel
Recommended tapes	Sony's 1-inch High Density Tape or equivalent
Reel size	NAB Standard, 11.75 or 6.5-inch reel

VIDEO (with HDT-1000)	
Signal system	RGB component
Recording system	FM recording
Bandwidth	DC to 20MHz $\pm 9.8$ dB (luminance) DC to 10MHz $\pm 9.8$ dB (chrominance)
K factor	Less than 2, 2T pulse
Phase error of each component channel	$\pm 5$ nsec.

AUDIO	
Frequency response	CH-1/2/3 50Hz to 15kHz $\pm 1.8$ dB 200Hz to 7.5kHz $\pm 1.0$ dB
S/N	CH-1/2 Better than 58dB (from 3% distortion level) CH-3 Better than 50dB (from 3% distortion level)
Distortion (1kHz)	CH-1/2/3 Less than 1% (at operating level)
Wow & flutter	Less than 0.1% rms (0.5 to 200Hz, NAB, unweighed)
Crosstalk (at 1kHz)	Less than -60dB (between any two channels)

### TBC/SIGNAL PROCESSOR (HDT-1000)

GENERAL	
Power requirements	AC 100/120V $\pm 10\%$ , 50/60Hz
Power consumption	850W
Operating temperature	+10°C to +35°C (50°F to 95°F)
Storage temperature	-20°C to +60°C (-4°F to 140°F)
Humidity	10% to 85% (non-condensing)
Weight	Approx. 140kg (309 lb)
Dimensions	Approx. 570(W) $\times$ 1070(H) $\times$ 630(D)mm (22.4 $\times$ 42.1 $\times$ 24.8")
VIDEO	
Signal system	RGB component
Window	5Hp-p
Quantization	8 bits
Sampling rate	69.1MHz

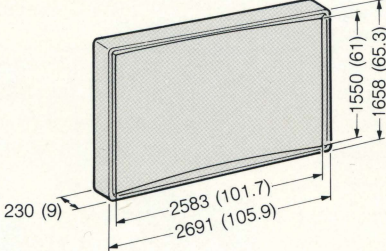
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# Specifications

## IMAGE DISPLAY

### PROJECTOR SYSTEMS

	CONCAVE PROJECTOR SYSTEM HDI-120	FLAT PROJECTOR HEAD HDIH-200F/120F/70F
Screen size	120-inch concave screen	240 – 60 inch flat screen HDIH-200F/HDIH-120F/HDIH-70F
Input signal	RGB with or without sync Ext sync. (comp. or HD/VD)	RGB with or without sync Ext sync. (comp. or HD/VD)
Power requirements	AC 100 to 120/220 to 240V ±10% 50/60Hz	AC 100 to 120/220 to 240V ±10% 50/60Hz
Resolution	1000 TV lines in central area (at aspect ration 5:3)	1000 TV lines in central area (at aspect ration 5:3)
Brightness	50fL (at G=13/120" screen)	Based on screen gain and size
Operating temperature	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
Weight	Projection head    Approx. 90 kg Screen                Approx. 55 kg Screen Stand        Approx. 70 kg	Projection head    Approx. 99 kg
Dimensions	 <p>Projection head: Approx. 760(W) × 372(H) × 975(D)mm (29.9 × 14.6 × 38.4")</p> <p>Screen stand: Approx. 1700(W) × 2250(H) × 400(D)mm (66.9 × 88.6 × 15.7")</p>	Projection head: Approx. 760(W) × 362(H) × 975(D)mm (29.9 × 14.6 × 38.4")

Design and specifications subject to change without notice.

### COLOR MONITOR

	HDM-1220/1220E	HDM-1820/1820E	HDM-2820/2820E	HDM-3720/3720E
Power requirements	AC 100 to 120, 220 to 240V ±10%, 50/60Hz	AC 100 to 120, 220 to 240V ±10%, 50/60Hz	AC 100 to 120, 220 to 240V ±10%, 50/60Hz	AC 100 to 120, 220 to 240V ±10%, 50/60Hz
Power consumption	150W	180W	300W	350W
Inputs	RGB × 2, Ext. sync (Comp. or HD, VD)	RGB × 2, Ext. sync (Comp. or HD, VD)	RGB × 2, Ext. sync (Comp. or HD, VD)	RGB × 2, Ext. sync (Comp. or HD, VD)
Picture height	161mm	230mm	372mm	477mm
Picture width	268mm	384mm	620mm	800mm
Aspect ratio	5:3	5:3	5:3	5:3
Resolution (at aspect ratio 5:3)	Center: H 600 TV lines V 750 TV lines Corner: H 580 TV lines V 700 TV lines	Center: H 760 TV lines V 750 TV lines Corner: H 700 TV lines V 700 TV lines	Center: H 1000 TV lines V 750 TV lines Corner: H 950 TV lines V 750 TV lines	Center: H 1000 TV lines V 750 TV lines Corner: H 950 TV lines V 750 TV lines
Operating temperature	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
Operating humidity	40% to 85% (non-condensing)	40% to 85% (non-condensing)	40% to 85% (non-condensing)	40% to 85% (non-condensing)
Dimensions	Approx. 480(W) × 284(H) × 512(D)mm (19 × 11.2 × 20.5")	Approx. 480(W) × 456(H) × 628(D)mm (19 × 18 × 25.1")	Approx. 754(W) × 613(H) × 677(D)mm (29.7 × 24.2 × 27")	Approx. 1030(W) × 760(H) × 850(D)mm (40.6 × 30 × 33.5")
Weight	Approx. 26 kg (57.3 lb)	Approx. 41.5 kg (91.5 lb)	Approx. 105 kg (231.5 lb)	Approx. 195 kg (430 lb)

Design and specifications subject to change without notice.



## MONOCHROME MONITOR

	HDM-140
Power requirements	AC 100 to 120, 220 to 240V $\pm 10\%$ , 50/60Hz
Power consumption	75W
Inputs	Video, Sync
Picture height	153mm
Picture width	255mm
Aspect ratio	5:3
Resolution (at aspect ratio 5:3)	Center: H 1000 TV lines V 750 TV lines
Operating temperature	0°C to 40°C (32°F to 104°F)
Operating humidity	10% to 90%
Dimensions	Approx. 482(W) $\times$ 266(H) $\times$ 439(D)mm
Weight	Approx. 24 kg (53 lb)

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